EUROPEAN PARLIAMENT

QUICK POLICY INSIGHT

Drones:
Engaging in debate and accountability

Author: Ulrich KAROCK

Drones — 'remotely piloted air systems' (either vehicles or aircraft, called RPAS), or unmanned or uninhabited aerial vehicles (UAVs) — are currently the subject of a lively debate, largely focused on their use in targeted killings. Yet focusing the discussion on this use of UAVs masks the fact they serve a wide variety of purposes, ranging from creating high-resolution imagery to contributing to agricultural pest control.

Given the importance — both realised and potential — and the diversity of the new technology, it is essential that a wide public debate be opened on the use of UAVs and mechanisms of accountability. Recent developments in the United States illustrate how parliaments have involved in the debate[1]. The European Parliament could take the lead in organising a wider discussion and developing a framework to regulate the use of RPAS in different contexts.

Past, present and future use

The first automatic aircraft was the Hewitt-Sperry Automatic Airplane[2], a sort of aerial torpedo which made its maiden flight in the United States in 1917. This and other early automatic planes were not constructed to return to a home base, but simply to serve as flying bombs. Once launched, they followed a straight trajectory without changing direction. The distance to be flown was programmed before the start, by counting a number of propeller rotations or using a timer. To compensate for the

[1] See the Policy Briefing produced by Poldep EXPO, 'Creating accountability: Recent developments in the US's policy on drones,' 28 March 2013: http://www.europarl.europa.eu/committees/en/studiesdownload.html?languageDocument=EN&file=92110

[2] http://www.history.navy.mil/download/ww1-10.pdf#search=%22developing%20the%20flying%20bomb%20Pearson%22

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Remotely piloted vehicles or aircraft are not an invention of the late 20th or early 21st century.

effects of lateral wind, a correction angle was applied to the launching ramp, without any further correction after the launch.

With the development of radio technology after World War I, attempts were made to remotely control pilotless aircraft and to transmit sensor data back from the aircraft to a pilot or operator. Automatic landing technologies were also developed, which initially served to assist crews landing aircraft when visibility was limited.

UAVs were massively used by the United States in reconnaissance roles during the Vietnam War in order to not 'needlessly expend the man in the cockpit'. Israel used UAVs for reconnaissance and as radar decoys against the opposing forces' air defences during the 1982 Lebanon War.

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Adding weapons to UAVs was proposed by the late 1940s, although this only happened decades later, after the technological challenges involved — removing the pilot, separating combatant from the plane — were mastered.

Armed UAVs were first used in the Iran-Iraq War in the 1980s, when Iran equipped remote-controlled aircrafts with simple rocket-propelled grenades for a rudimentary air-to-ground role. Although highly disputed, unmanned aerial vehicles are today also used in another air-to-ground role: targeted killings beyond the battlefield. This practice started in the late 1980, when Israel used armed UAVs during the First Intifada, and is today used by the US in the 'War on Terror' in Afghanistan, Pakistan and Yemen[3].

Unmanned combat aerial vehicles (UCAVs) are also being developed, although they are not yet in regular service. These are intended to suppress enemy air defences and to serve in air combat roles[4].

Remotely-piloted systems are also used in science, agriculture, environmental protection, goods transport and border security.

The military is not the only user of remotely piloted aircraft. They are already used — on a regular or experimental basis —in, *inter alia*, science, agriculture, environmental protection, goods transport and border security[5]. Using RPAS for fire fighting and air cargo has also been proposed.

Challenges ahead

The debate on the use of armed UAV in targeted killings beyond the battlefield should be complemented by a larger discussion about the use of these systems. In a number of legitimate civilian and military operations — including combat situations — RPAS may well prove an appropriate and proportionate tool.

[3] http://www.af.mil/news/story.asp?storyID=123027012

[4] http://www.eads.com/eads/int/en/news/press.20120723_cassidian_barracuda.html

[5] http://www.sagem-ds.com/spip.php?rubrique37&lang=fr

Examples of such uses — and the challenges they bring — include:

New opportunities, such the use of RPAS for regulating air traffic, reveal the challenges in cyber security, privacy protection, national and public security, and structural changes.

- **Air traffic insertion**[6]. Unmanned aircraft systems need to be integrated in the Single European Sky.

  This requires creating a regulatory framework at the EU level as well as developing technologies and harmonised standards.
- **High resolution imagery** (and other data produced by RPAS' sensors). This could be made available to a wider population than today, including non-state actors.

  This raises issues regarding privacy protection. For those RPAS capable of flying over larger distances and across borders, there also exist national and public security concerns[7].

In general, making the command and control links of RPAS impermeable to cyber attacks will pose a particular challenge[8]. Using the systems in combat situations — or even in certain non-military situations, such as agricultural pest control — will require that security standards be adapted, notably when commanding and controlling the payload[9].

Operating aerial vehicles beyond the line-of-sight (BLOS) — which will become standard for long-endurance RPAS — will also place burdens on data transmission (capacity, global availability and reliability), which depend on satellites and other modes of transmission[10].

Shifting demands, new UAV market entrants and increasing competition in the global market will challenge traditional (combat) aircraft industry structures.

The move towards RPAS may also fundamentally change the research and business landscape. Knowing how to make an inhabited (combat) aircraft once represented a competitive advantage; this knowledge, however, becomes more or less obsolete with RPAS. New market entrants will find business opportunities, while traditional (combat) aircraft manufacturers will discover that their past investments and knowledge have become outmoded. As in all high-investment and high-tech business sectors reliant on innovation, this will require that regulators keep track of the shifting market and perhaps develop new frameworks in response.

And just as the suppliers of RPAS are unlikely to be those who supplied traditional aircraft, the buyers of RPAS may not by those who purchased the old systems — further complicating the task for regulators[11] and

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[6] http://www.eda.europa.eu/migrate-pages/Otheractivities/UAStrafficinsertion

[7] http://uasevent.com/files/2012/04/peter-lee.pdf

[8] http://www.barnardmicrosystems.com/ME4%20files/download/IET_UAV_C2_Barnard_DEC_2007.pdf

[9] http://www.transport-research.info/Upload/Documents/201301/20130111_100120_33465_D4.1._UAS_within_the_2020_ATM_SWIM-enabled_System.pdf

[10] http://www.wsmr.army.mil/RCCsite/Documents/Flight%20Safety%20System%20%28FSS%29%20for%20Unmanned%20Aerial%20Vehicle%20%28UAV%29%20Operation/Flight%20Safety%20System%20for%20Unmanned%20Aerial%20Vehicle%20Operation.pdf

[11] http://ec.europa.eu/enterprise/sectors/defence/files/defence_tf_non_paper_final_en.pdf

states.

Further elements for the debate

Innovation requires political and societal debate. Innovation in defence requires even more of this debate.

Innovation creates new products and services. It changes and reshapes technological, industrial and market landscapes — as well as battlefields. Innovation alters products and means alike, demanding political and societal debate and mechanisms of accountability. Innovation in defence requires even more of this debate.

Remotely piloted aircraft systems require a deep debate — one that goes beyond the confines of the current discussion. In part, the conversation to date has principally focused on the purposes and morality of RPAS. But this is, in a sense, a false debate, one that should be replaced by more pertinent and urgent problems.

An example: drones will (one day) fight forest fires. The tools for fighting fires will change. But so will the manner in which these fires are fought: with air-to-air refuelling, RPAS can stay airborne 24/7, and a single operator ('pilot') can control multiple aircraft at the same time. Yet RPAS do not alter the fundamental task at hand: fighting forest fires.

Drones do not alter what the military does.

Similarly, in the military field, one should always keep the broader picture in mind. RPAS can be a useful tool, one the military will in any case employ — and with increasing frequency, as RPAS bring a competitive advantage to the battlefield. Although RPAS change how some military tasks are performed, they do not change what the military must accomplish. The law of armed conflict, the *ius in bello,* sets limits on to the military use of RPAS, regarding, for example, military necessity, distinction and proportionality, surrender and the treatment of combatants *hors de combat*.

Debate, organised at the European level, could develop a set of rules regarding the use of RPAS.

Future debate could be organised at the European level and could aim to develop a set of rules about using RPAS in joint disarmament operations, humanitarian and rescue missions, military advice and assistance, conflict prevention and peace-keeping, combat work in crisis management, including peace-making and post-conflict stabilisation. The EU could take the lead in this regard, deepening the debate and bringing our understanding of RPAS to the next level.